

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

**Post Hearing Air Permit Review**  
(Attached to the main review)

**Region:** Winston-Salem Regional Office  
**County:** Alamance  
**NC Facility ID:** 0100010  
**Inspector's Name:** Ray Stewart  
**Date of Last Inspection:** 03/24/2009  
**Compliance Code:** 3 / Compliance - inspection

**Permit Issue Date:**

<b>Facility Data</b>			<b>Permit Applicability (this application only)</b>		
<b>Applicant (Facility's Name):</b> Stericycle, Inc.  <b>Facility Address:</b> Stericycle, Inc. 1168 Porter Avenue Haw River, NC 27258  <b>SIC:</b> 4953 / Refuse Systems <b>NAICS:</b> 562213 / Solid Waste Combustors and Incinerators  <b>Facility Classification: Before:</b> Title V <b>After:</b> Title V <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V			<b>SIP:</b> <b>NSPS:</b> <b>NESHAP:</b> <b>PSD:</b> <b>PSD Avoidance:</b> <b>NC Toxics:</b> <b>112(r):</b> <b>Other:</b>		
<b>Contact Data</b>			<b>Application Data</b>		
<b>Facility Contact</b>	<b>Authorized Contact</b>	<b>Technical Contact</b>	<b>Application Number:</b> 0100010.06A <b>Date Received:</b> 08/31/2006 <b>Application Type:</b> Renewal <b>Application Schedule:</b> TV-Renewal <b>Existing Permit Data</b> <b>Existing Permit Number:</b> 05896/T17 <b>Existing Permit Issue Date:</b> 10/11/2005 <b>Existing Permit Expiration Date:</b> 05/31/2007		
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<b>Review Engineer:</b> Gautam Patnaik		<b>Comments / Recommendations:</b>			
<b>Review Engineer's Signature:</b> _____		<b>Issue</b> 05896/T18 <b>Permit Issue Date:</b> _____ <b>Permit Expiration Date:</b> _____			
<b>Date:</b> _____					

## 1. Post Hearing changes

The public hearing for this renewal commenced on 6/30/2010. The Hearing Officer provided a report to the NCDAQ Director (See Attached Hearing Officer's Report). The Director issued a memorandum directing the Permits Section to issue the permit after addressing her recommendations. (See Attached memorandum from Director Holman) The following items were taken from the Director's Memorandum and NCDAQ Permit Section's response follow:

### Hearing Officer Recommendation 1:

The hearing officer's report II A. 3., suggested including the packed bed scrubber liquid flow rate as a required monitoring parameter.

*Director Decision:*

I recommend that the DAQ staff review scrubber monitoring provisions and include in the final permit sufficient monitoring provisions that ensures the proper operation of the scrubber.

Permits Section Response:

The applicant currently monitors the pressure drop across the venturi scrubbers and records the pressure drop across each venturi scrubber once per minute. (Section 2.1. A. b. (9). B., of the current permit). The applicant also operates and maintains a continuous monitoring equipment to measure pH for wet scrubber systems (Section 2.1. A. d. (3)) and the pH at the inlet to the packed bed scrubber systems on a three hour rolling average (Section 2.1. A. e. (1). B. vi.)

A review of recent test runs (test done on ES01 on March 24 2009, and test done on ES02 on March 22 2010) showed that the pH for ES01 ranged from 4.0 to 5.39 and the pH for ES02 ranged from 4.38 to 5.5. The current permit includes a minimum pH permit limits for the packed bed scrubber liquor for ES-01 and ES-02 of 4.15 and 3.6, respectively.

The pressure drop across the scrubbers varied from 42.16 to 44.5 inches of water for ES01 and 42.85 to 44.4 inches of water for ES02. The current permit includes minimum pressure drop limits across venturi scrubber of 40.0 and 40.1 inches of water, for ES-01 and ES-02 respectively.

Because the permit already contains monitoring parameter ranges consistent with existing operating conditions and therefore no revisions to these existing monitoring ranges was necessary

**Hearing Officer Recommendation 2:**

The hearing officer's report II A. 4., recommended that the DAQ permitting staff consult with the DAQ Stationary Source Compliance Branch to establish specific permit conditions that meet requirements in 40 CFR 60 Subpart Ec and performance specifications in 40 CFR Part 60, Appendix B., regarding permit requirements for the oxygen and carbon monoxide continuous emission monitors.

*Director Decision:*

I recommend that the final permit include a requirement for Stericycle to install Continuous Emission Monitors (CEMs) for carbon monoxide. I further recommend the DAQ permit staff consults with the DAQ Technical Services staff to ensure that the final permit includes provisions sufficient to ensure the monitors are properly operated, maintained, and calibrated.

Permits Section Response

The revised permit will include a requirement to install Continuous Emissions Monitoring (CEMs) for incinerators (ID Nos. ES01 and ES02) to monitor for CO emissions. As per NSPS Subpart Ec Table 1A,:

- i. The CEM systems shall be installed, calibrated, maintained, tested, and operated in accordance with 40 CFR Part 60, Appendix B, Performance Specifications and Appendix F, Quality

Assurance Procedures and any written manufacturers specifications or recommendations as approved by the Division in the Quality Assurance Plan (QAP).

- ii. As per 40 CFR § 60.56c (5) (i) compliance with the carbon monoxide emission standard shall be demonstrated based on a 12-hour rolling average, calculated each hour as the average of the previous 12 operating hours of the carbon monoxide exhaust gas concentration measured by the CEM systems.
- iii. The applicant shall submit semi-annually any excess carbon monoxide emission reports as measured by the continuous emission monitor to DAQ.
- iv. The NSPS does provide that compliance with the CO limit be demonstrated through either stack testing or CEMS. Because the Director is requiring CO CEMS the permit will require the applicant to use the CEMS data to determine compliance with the CO limit.

All these requirements are stipulated in Section 2.1. A. 1. h., of the renewed permit.

### **Hearing Officer Recommendation 3:**

MACT Subpart ZZZZ establishes national emission limitations and operating limitations for Hazardous Air Pollutant (HAP) emissions from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. The Hearing officer report II A. 5. f., wants the single diesel-fired emergency generator (395 kW) located at the Stericycle facility to be subject to this regulation.

### *Director Decision*

I recommend that the final permit include permit requirements consistent with the RICE MACT.

### **Permits Section Response**

This source is an existing stationary RICE source as per 40 CFR 63.6590(a)(1)(iii) since construction commenced before June 12, 2006. As per 40 CFR § 63.6645(a)(5) initial notification does not apply to this source since this is an existing stationary CI RICE that is not subject to any numerical emission standards (see below).

As per requirements of 40 CFR § 63.6603(a) an existing stationary CI RICE located at an area source of HAP emissions, must comply with the requirements in Table 2d (of Subpart ZZZZ) and the operating limitations in Table 2b (of Subpart ZZZZ). As per Table 2b of this MACT there is no emission limits and as per Table 2d for an “emergency CI and black start CI” the requirements are as follows:.

- i. Change oil and filter every 500 hours or annually, whichever comes first.
- ii. Inspect air cleaner every 1000 hours or annually, whichever comes first.
- iii. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
- iv. Minimize the engine’s time spent at idle during startup and minimize the engine’s startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitation apply.

The general requirements specified in 40 CFR § 63.6605 (a) and (b) the applicant must be in compliance with the emission limitations and operating limitations in this subpart that apply at all times and must operate and maintain any affected source, including associated air pollution control

equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

40 CFR § 63.6625(e) "...an existing stationary RICE located at an area source of HAP emissions not subject to any numerical emission standards shown in Table 2d to this subpart, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions."

As per 40 CFR § 63.6625(f) an existing emergency stationary RICE located at an area source of HAP emissions must install a non-resettable hour meter if one is not already installed.

40 CFR § 63.6625(h) requires the facility to operate an existing stationary engine to minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times.

40 CFR § 63.6640(f) "Existing emergency stationary RICE located at an area source of HAP emissions must operate the engine according to the conditions described in paragraphs (f)(1) through (4) of this section."

Oil Analysis program – As per the requirements of 40 CFR § 63.6625(i) a stationary engine that is subject to the work, operation or management practices has the option of utilizing an oil analysis program in order to extend the specified oil change requirements. The oil analysis must be performed at the same frequency specified for changing the oil. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The limits for these parameters are as follows:

1) Total Base Number to be less than 30 percent of the Total Base Number of the oil when new; 2) viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or 3) percent water content (by volume) is greater than 0.5. If all of these limits are not exceeded, the facility is not required to change the oil. If any of the limits are exceeded, the facility must change the oil before continuing to use the engine. The facility must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

The record keeping requirements are as specified in 40 CFR § 63.6655 (a)(1) through (a)(5), (b)(1) through (b)(3) and (c).

All the above requirements are stipulated in 2.1 B. 3., of the renewed permit.

#### **Hearing Officer Recommendation 4:**

Hearing officer's report II A. 2., suggests the permit review include calculations estimating what would be the typical annual limits of various pollutants subject to the October 6, 2009 revisions to 40 CFR 60 Subpart Ec, assuming stack air flows were based on flows observed in the latest source tests results.

*Director Decision*

The permit review document should include emission estimates based on the most recent stack test data.

Permits Section Response

The table below shows the current NSPS Subpart Ec emissions standard and the 2009 NSPS Ec final limit (effective in 2014) for various pollutants and estimated emissions based on the most recent stack test data. The table also shows the test results for the tests done on ES-01 and ES-02.

Regulated Pollutant	Current NSPS Ec limits	Test Result for ES-02 done on 3/23/10	Test Result for ES-01 done on 3/24/09	2009 NSPS Ec Final Limit
Filterable PM	34 mg/dscm <sup>a</sup> (0.015 gr/dscf)	23 mg/dscm <sup>a</sup>	17 mg/dscm <sup>a</sup>	25 mg/dscm <sup>a</sup> (0.011 gr/dscf)
	N/A	0.29 lb/hr	0.2 lb/hr	
Condensable PM	N/A	0.33 lb/hr	0.2 lb/hr	
Total PM	N/A	0.62 lb/hr	0.4 lb/hr	
Visible Emissions	10% opacity	0% opacity <sup>b</sup>	0% opacity <sup>b</sup>	
CO	40 ppmv <sup>a</sup>	2.3 ppmv <sup>a</sup>	2 ppmv <sup>a</sup>	11 ppmv <sup>a</sup>
Hydrogen chloride	100 ppmv <sup>a</sup> or 93% reduction	(ND) 1 ppmv <sup>a</sup>	4 ppmv <sup>a</sup>	6.6 ppmv <sup>a</sup>
Lead	1.2 mg/dscm <sup>a</sup> or 70% reduction	0.2 mg/dscm <sup>a</sup>	-	0.036 mg/dscm <sup>a</sup>
Cadmium	0.16 mg/dscm <sup>a</sup> or 65% reduction	0.003 mg/dscm <sup>a</sup>	-	0.0092 mg/dscm <sup>a</sup>
Mercury	0.55 mg/dscm <sup>a</sup> or 85% reduction	0.19 mg/dscm <sup>a</sup>	0.01 mg/dscm <sup>a</sup>	0.018 mg/dscm <sup>a</sup>
Dioxins/furans	5 ng/dscm (total) <sup>a</sup> or 2.3 ng/dscm TEQ <sup>a</sup>	1.8 ng/dscm (total), 0.04 ng/dscm TEQ	-	9.3 ng/dscm (total) <sup>a</sup> or 0.054 ng/dscm TEQ <sup>a</sup>
Sulfur dioxide	55 ppmv <sup>a</sup>	-	-	9.0 ppmv <sup>a</sup>
Nitrogen oxides	250 ppmv <sup>a</sup>	-	-	140 ppmv <sup>a</sup>

<sup>a</sup> Corrected to 7% oxygen on a dry standard basis.

<sup>b</sup> Highest six-minute average

Meets 2009 Subpart Ec Final limits.

**Hearing Officer Recommendation 5:**

Hearing officer's report II A. 1., suggested to include a stipulation specifying that the facility meet the requirements of 40 CFR 60 Subpart Ec by October 6, 2014 or **earlier**.

*Director Decision*

This specific issue is before the NC Environmental Management Commission (EMC). I recommend allowing the EMC to make this determination.

Permits Section Response

No response necessary.

**Hearing Officer Recommendation 6:**

Hearing officer's report II A. 1. a, through d, suggests various changes to the permit.

*Director Decision*

I recommend the review engineer should make the necessary changes in consultation with his supervisor and record the reasons for the changes in his review.

## Permits Section Response

This recommendation included primarily administrative and ministerial changes to the draft permit for clarification purposes.

**10. Permit Modification/Changes**

The following table describes the changes to the current permit as part of the Renewal process.

<b>Page(s)</b>	<b>Section</b>	<b>Description of Change(s)</b>
3	2.1 A.	Match equipment description with the source table listing and separate equipment description into two sources.
6	2.1. A. 1. b. (7). G.	Added reference to "non-hazardous materials" not regulated under 15NCAC 13A .0106
6 to 7	2.1. A. 1. b. (7). G.	Modified recoding requirements for the charge rate and pressure difference
8	2.1 A.e.(1)B.i.	Now specifically refers to the table in Section 2.1 A. 1.a.
7	2.1 A.d.(3)	Changed to read "primary chamber and secondary chamber of each unit" and to read "pH for each wet scrubber system."
10 to 11	2.1. A. 1. h.	CEMs for Incinerators to monitor CO emissions
12 to 13	2.1 B. 3	MACT Subpart ZZZZ for emergency generators
11	Testing.	Change all testing reference
16 to 25	General Conditions	Updated