



REGION 5

CHICAGO, IL 60604

MEMORANDUM

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Stericycle, Clinton, Illinois

FROM: Charles Zeman, Physical Scientist
AECAB (MN/OH)

THRU: Brian Dickens, Section Supervisor
AECAB (MN/OH)

TO: File

BASIC INFORMATION

Facility Name: Stericycle

Facility Location: 5815 Weldon Springs Rd, Clinton, IL, 61727

Date of Inspection: July 23, 2024

EPA Inspector(s):

1. Charles Zeman, Physical Scientist
2. Aileen Drum, Physical Scientist
3. Justin Smith, Environmental Engineer

Other Attendees:

1. Robert Porter, Operations Supervisor (Stericycle)
2. Douglas Clark, Facility Manager (Stericycle)
3. David Corsa, Maintenance Manager (Stericycle)

Contact Email Address: Wade VanZee, Regional Manager (Stericycle) – wvanzee@stericycle.com

Purpose of Inspection: Clean Air Act compliance evaluation

Facility Type: Large Hospital, Medical, and Infection Waste (HMIW) Incinerator

Regulations Central to Inspection: 40 CFR 60 Subpart Ce, NSPS for HMIW incinerators. 35 Ill. Adm. Code Part 229, state plan for HMIW incinerators. The facility's Title V permit.

Facility Name: Stericycle, Inc.
Facility Location: 5815 Weldon Springs Rd, Clinton, IL, 61727
Date of Inspection: July 23, 2024

Arrival Time: 11:30 am

Departure Time: 1:40 pm

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☒ Provided Small Business Resource Information Sheet
- ☐ Small Business Resource Information Sheet not provided.
- ☒ Provided CBI warning to facility

The following information was obtained verbally from Douglas Clark, David Corsa, and Robert Porter unless otherwise noted.

Company Ownership:

At the time of the inspection, Stericycle has not experienced any change in ownership within the past 5 years.

Process Description:

Stericycle receives and processes medical waste by incineration, achieving mass reduction by 85% before shipping ash to an offsite landfill. The facility houses two identical incinerators labeled as "Unit 1" and "Unit 2." For each incinerator, medical waste is first loaded into the primary chamber where it is reduced to ash, which then drops out of a chute to a water bath. Smoke that is internal to the primary chamber is directed upwards to a second, oxygen-rich chamber. Gas and smoke from the secondary chamber are exhausted to a series of control devices, beginning with an atomizer that injects water mist. The pre-quenched exhaust is directed to a selective non-catalytic reduction (SNCR) system before passing through the quench tower. Water is used to reduce temperature and achieve pH control with sodium hydroxide (NaOH). Demisted gases are then pulled through carbon beds and 1-micron filters by an induced-draft fan before being boosted to atmosphere.

Staff Interview:

The facility operates 24 hours per day, 7 days per week, in 4 staggered shifts and employs approximately 50 workers at their Clinton, IL location. An estimated 3-5 trailers deliver more than 10,000 lbs of hospital, medical, or infectious waste per day, each, and the deliveries are logged on a manifest. Pallets of waste are batch-loaded into the primary chamber at a rate of 135 lbs/minute and an interlock system precludes feed rates greater than 1400 lbs/hour. The facility's Title V permit limits

the feed rate to approximately < 1430 lbs/hour for each unit. Charge fed to the incinerator spends 4-6 hours in the primary chamber at temperatures of > 1400° F, fueled by the heating value of the feed material. Exiting smoke and gas spend several seconds in the secondary chamber at > 1800° F. Between the atomizer and SNCR system, there is an emergency vent to the bypass stack, which is capable of exhausting uncontrolled combustion products directly to atmosphere. Urea in the SCNR system controls for nitrogen oxides while NaOH controls for hydrogen chloride (HCl). Particulate matter is captured by water mist and droplets, additionally facilitated by a venturi scrubber. The quench tower reduces the temperature of incinerator exhaust to a target of 178° F, referred to as the “quench temperature.” The remaining carbon beds and 1-micron filters are intended to act as a final control before venting the exhaust to atmosphere.

The emergency bypass stack, located between the atomizer and SNCR system, is automatically activated in the event of a total power failure, malfunction of the induced-draft fan, or if the quench temperature reaches > 300° F, and feed is immediately stopped. The facility recalls two such events in which the bypass stack was used within the past 5 years (February 2022 and February 2023). In both cases, the use of the bypass stack was triggered by quench temperatures reaching > 300° F as a result of a quench belt failure. 35 Ill. Adm. Code Part 229 stipulates that the facility’s emission limitations apply at all times, including during malfunctions. Both events were isolated to Unit 1. The facility now replaces the quench belts every 2 months for both units.

The last performance stack test was conducted in September of 2022 for the emission of particulate matter, HCl, and carbon monoxide for both units. EPA notes that Unit 2 was found to emit 0.0098 gr/dscf of particulate matter. 40 CFR 60 Subpart Ce limits large HMIW incinerators to 0.011 gr/dscf of particulate matter emissions.

TOUR INFORMATION

EPA Toured the Facility: Yes

Data Collected and Observations:

During a tour of the facility, EPA observed boxes of medical waste being loaded into Unit 1. When the door to the incinerator was open, large amounts of smoke billowed out of the primary chamber. Facility staff explained that this happens occasionally as a result of paper or cardboard getting stuck near the entrance to the incinerator. Control displays showed the temperatures of the primary chamber, secondary chamber, and quench tower as a 3-hour average. Quench temperatures for Units 1 and 2 were 178° F and 158° F, respectively. Precise logs of the quench temperature were recorded on paper at 1-hour intervals. EPA noted the magnehelic for the lower carbon bed on Unit 2 displayed a reading below 0 in. WC. Facility personnel stated that was below the recommended range of 3-3.5 in. WC and that the line may be clogged. Outside of the facility, each incinerator unit had 2 stacks: the bypass stack and process stack. The facility’s Title V permit limits opacity to 6% as measured on a 6-minute block average. No visible emissions were seen to be exiting the stacks.

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Photos and/or Videos: were taken during the inspection and are listed in Appendix A.

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:

- Semi-annual reports to IEPA for the past 5 years
- Records of quench temperature for February of 2022, 2023, and 2024
- Results of the 2022 performance stack test
- 2023 incinerator condition report
- Process flow diagram

Concerns: EPA noted concerns of multiple uses of the bypass stack within the past few years and the out-of-range magnehelic for Unit 2.

DIGITAL SIGNATURES

Report Author: Zeman,
Charles Digitally signed by
Zeman, Charles
Date: 2024.09.11
07:51:03 -05'00'

Section Supervisor: BRIAN
DICKENS Digitally signed by BRIAN
DICKENS
Date: 2024.09.11
07:57:42 -05'00'

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APPENDICES

1. Appendix A: Digital Image Log and Digital Video Log

APPENDIX A: DIGITAL IMAGE LOG AND DIGITAL VIDEO LOG

Inspector Name: Charles Zeman

Archival Record Location: [Inspection ERC Folder](#)

Image Number	File Name	Date and Time (incl. Time zone and DST)	Description of Image
1	IMG_0600.JPG	7-23-2024 12:35 pm CST	Unit 1 Parameter Monitor
2	IMG_0601.JPG	7-23-2024 12:39 pm CST	Unit 1 Hourly Readings
3	IMG_0602.JPG	7-23-2024 12:41 pm CST	Unit 2 Parameter Monitor
4	IMG_0603.JPG	7-23-2024 12:41 pm CST	Unit 2 Hourly Readings
5	IMG_0604.JPG	7-23-2024 12:50 pm CST	Bypass Stack
6	IMG_0605.JPG	7-23-2024 12:52 pm CST	Magnehelic gages of Unit 2
7	IMG_0606.JPG	7-23-2024 12:54 pm CST	Magnehelic gages of Unit 1
8	IMG_0607.JPG	7-23-2024 12:58 pm CST	All 4 stacks as seen from outside.